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[DIVISION OF ORNITHOLOGY AND  
MAMMALOLOGY, CIRCULAR No. 3.]

# U. S. Department of Agriculture,

DIVISION OF ECONOMIC ORNITHOLOGY AND MAMMALOLOGY.

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## CIRCULAR ON THE ECONOMIC RELATIONS OF MAMMALS.

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The Department of Agriculture desires information concerning the effects of mammals upon agriculture, and solicits replies to the following questions:—

TO STOCK RAISERS ON THE FRONTIER.

1. Have you personal knowledge of one or more cases in which cattle, horses, sheep, or pigs have been killed or injured by Bears, Wolves, or Panthers (known in the West as Mountain Lions)? If so, give full particulars.

TO POULTRY FANCIERS.

2. Have you personal knowledge of the loss of turkeys, geese, ducks, chickens, or doves from the attacks of predatory mammals? If so, how many and what kinds were killed on each occasion? In each case mention the animal by which you suppose the mischief was done, and your reasons for this belief.

3. What mammals, if any, steal feed put out for poultry?

TO FARMERS, FRUIT GROWERS, AND GARDENERS.

4. What mammals, if any, are injurious to grain crops in your neighborhood? In each case state whether the injury is occasioned directly by the consumption or the trampling of the grain, or by tunnels underneath the surface. Is the loss thus occasioned of trifling or serious consequence?

5. What mammals, if any, are injurious to fruit, and what kind or kinds of fruit are eaten by each species? Is the loss thus occasioned of trifling or serious consequence?

6. What mammals, if any, are injurious to vegetables, and what kind or kinds of vegetables are eaten by each species? Is the loss thus occasioned of trifling or serious consequence?

7. What mammals, if any, are injurious to meadows and pastures? In what manner are the injuries committed? Is the loss thus occasioned of trifling or serious consequence?

8. Are your fields subject to periodical invasions of Meadow Mice (*Arvicolæ*)? If so, can you give the exact dates of one or more of such invasions?

9. What mammals, if any, are injurious to forest, shade, fruit, or ornamental trees or shrubs? What kind or kinds of trees or shrubs are injured by each, and in what manner and at what season is the damage done? Is the loss thus occasioned of trifling or serious consequence?

10. Have you personal knowledge of an instance in which cattle or horses have been injured by stepping into the burrows of Woodchucks, Muskrats, or Badgers? If so, give particulars.

11. What mammals, if any, are beneficial to the farmer? In what manner are these benefits derived?

#### TO RICE GROWERS.

12. Are rats troublesome on your plantation? If so, are they injurious by feeding directly upon the newly-planted rice, or by burrowing in the dikes, or both? Can you estimate the annual pecuniary loss thus occasioned?

13. Do any other small mammals affect the interests of the rice grower? If so, what kind or kinds, and to what extent?

#### TO HOP GROWERS.

14. What mammals, if any, affect the interests of the hop grower? In what manner and to what extent are these effects manifested?

#### MISCELLANEOUS.

15. Is the common mouse about dwellings, barns, and out-buildings in your neighborhood the White-footed or the House Mouse, or are both present? In the latter case, which is most abundant? If uncertain as to the species, please send a specimen (the head will suffice) to the Department for identification.

16. What mammals, if any, injure or deface buildings, household goods, books, or papers?

17. What mammals, if any, injure canals or other embankments, dams, dikes, or drains? Is the damage thus occasioned of serious or trifling consequence?

18. In your opinion, are Moles beneficial or injurious? On what facts is this opinion based? (NOTE.—Meadow Mice, or 'Voles,' must not be confounded with Moles).



19. In your opinion, are Skunks beneficial or injurious? On what facts is this opinion based?

20. Do you know of one or more instances in which the increase of a species of economic importance has been limited by the abundance of its natural enemies? If so, give particulars.

In the Mississippi Valley, and the region between it and the Pacific, numerous small rodents called Gophers do great damage to farms and crops. There are two principal kinds, *Pocket Gophers*, which live mostly under ground and are characterized by external cheek-pouches and unusually large fore-claws (*Geomys* and *Thomomys*); and *Gophers* or *Ground Squirrels* which live mostly above ground and have neither external cheek-pouches nor claws of unusual size (*Spermophilus* and *Tamias*). Of these, the common little Striped Gopher (*Spermophilus tridecemlineatus*) and the large gray 'Line-tailed' Spermophile (*Spermophilus grammurus*) and its varieties are the most abundant and widely distributed, and occasion the greatest losses to grain crops. Numerous other species, more or less local, affect the farmer's interests very appreciably.

Detailed information is desired concerning the habits and ravages of all these Gophers. Such information should be accompanied by a specimen (a rough skin will suffice) for positive identification.

The above remarks apply with equal force to the various small mammals known as Kangaroo Rats and Mice, Pocket Rats and Mice, Wood Rats and Mice, etc.

In answering this circular, please mention your occupation. If a farmer, state the size and character of your farm, and mention the principal crops which you cultivate.

Write your name and post-office address as plainly as possible.

Address all communications to:

DR. C. HART MERRIAM,

*Chief of Division of Economic Ornithology and Mammalogy.*

WASHINGTON, D. C., JULY 27, 1886.

